

CHAPTER 1

Introduction and Background

PURPOSE OF THE EMS STRATEGIC PLAN

The EMS Strategic Plan provides a roadmap to guide the County's EMS system through the 1998 - 2003 levy period. The plan builds upon the 1990 Master Plan and establishes new policy directions, describes a new strategic plan for the County's EMS system, and provides a financing plan and implementation schedule.

This Plan is preceded by the 1995 EMS Master Plan Update which focuses on operational issues including: response time standards, numbers of ALS units needed, the location of ALS units throughout the county, 12-hour units, alternative staffing models, and other operational enhancements. The 1995 Master Plan Update provides a "nuts and bolts" approach for providing EMS services, and this Strategic Plan establishes policy directions for moving the County's EMS system into the 21st century⁽¹⁾.

EMS SYSTEM ORGANIZATIONAL DESIGN

The past twenty-five years has seen the development of a regional EMS system in the greater King County area. This system is based on the delivery model developed in the City of Seattle in the

late 1960's. Pioneered by Leonard A. Cobb, M.D and Gordon Vickery, Former Chief of the Seattle Fire Department, the EMS program now incorporates a medically-oriented, tiered response system. Major components of the system functionally embrace the full continuum of care for out-of-hospital emergency services and include:

- Extensive training of citizens in cardiopulmonary resuscitation.
- Universal access to the system to all who call the countywide 911 emergency telephone number.
- Call receipt and triage by dispatchers to ensure that (1) the most appropriate levels of emergency medical providers are sent to the scene, and (2) assistance to callers by dispatchers is provided until the response team arrives (including delivering phone instructions in CPR).
- Rapid response and treatment at the scene by Emergency Medical Technician (EMT)/firefighters.
- Provision of advanced emergency medical care to patients with serious injuries or illnesses by Harborviewtrained paramedics.
- Integral participation of EMT's employed by private ambulance companies in continuing patient care and transport.
- Physicians who provide legal medical authority, uniform medical oversight and medical direction to the EMS system.

¹ See also Emergency Medical Services Master Plan Reports, Seattle-King County Department of Public Health, EMS Division, April 1990-1995.



- Strong ties with local hospitals, especially those with emergency department physicians and staff who serve as medical control points for paramedic units.
- A systems approach which emphasizes excellent training, effective research, and quality assurance as the key to successful prehospital patient care.

The County's EMS system has adapted the Seattle Fire Department's Medic One Program model to accommodate the demographic, geographic and jurisdictional uniqueness of King County. ALS in both Seattle and King County have been primarily supported by an EMS levy since 1979. Seattle utilizes EMS levy funds to support the spectrum of EMS services within the city. The County portion of the regional system uses the EMS levy funds to support paramedic, fire department BLS and regional EMS programs. The City of Seattle and the County's EMS system function collaboratively and coordinate services across jurisdictional boundaries. The two programs operate under separate administrative structures and the remainder of this report addresses the County's regional system. (See Appendix B for more information on Seattle's EMS program.)

Legal Authority

The King County EMS program serves as a constituent of the statewide Emergency and Trauma Care System described in RCW 18.71.200 – 18.71.215, Chapters 18.73 Sections 70.68 and 70.24. This legislation is administered through WAC 246-976: Emergency Medical Services and Trauma Care System. All ALS and BLS personnel in Seattle and King County meet or exceed state EMS certification standards defined in RCW and WAC.

Within the state system, King County is designated as the "Central Region." The

EMS Division is an active participant in the Central Region EMS and Trauma Council and supports the county's trauma registry and other council activities.

The County's EMS System

The County's EMS program serves over one million residents and 60,000 businesses located in 19 cities and 16 fire districts throughout King County. This area covers approximately 1,000 square miles of urban, rural, and wilderness areas. EMS response times, transport times and proximity to hospital services are challenged by geographic barriers, distance, time and traffic.

Currently, the King County EMS Division provides medical oversight to the system, helps coordinate regional services, and administers EMS levy funds under contract with 35 fire-based basic life support (BLS) providers and four agencies who provide paramedic or advanced life support (ALS) services. The four County ALS agencies include:

- Bellevue Medic One operated by Bellevue Fire Department (4 units)
- Evergreen Medic One operated by Evergreen Hospital Medical Center (4 units)
- King County Medic One operated by King County EMS Division (6 units)
- Shoreline Fire Department (1 ALS unit)

Tiered Response System

The regional tiered response system of 9-1-1, dispatch, BLS, and ALS enjoys an international reputation for innovation and excellence in out-of-hospital urgent and emergent care. For over twenty years, the system has maintained the highest reported survival rates in the treatment of out-of-hospital cardiac arrest patients across the nation. Resuscitation rates averaging 17% for sudden cardiac arrest patients and 29% for those



patients in ventricular fibrillation are typical in this region. By comparison, reported resuscitation rates as low as 1%-2% are typical in other areas of the United States.

Key to this success is integration of services into what the American Heart Association recognized in 1991 as the "Chain of Survival." This concept stresses a systems approach to successful treatment of cardiac arrest by identifying the interdependence of four essential links that are directly tied to cardiac patient survival and health status. These links include:

- early access to the EMS system through the 9-1-1 emergency telephone number;
- early CPR (with instructions provided by dispatchers, or provided by a trained citizen);
- early defibrillation by EMT/ firefighters (electric shocks given to restore a heart rhythm); and
- early paramedic care.

The success of the system is testimony to the commitment of all participants to providing high quality services to the residents of Seattle and King County.

The County's Criteria Based Dispatch Guidelines are another key component of the tiered response system. When a 9-1-1 medical emergency call is received by a dispatch center (see Appendix A, Map 1), the nearest fire department BLS unit is immediately called to the scene. Trained dispatchers use a series of predefined medical criteria for various types of medical problems. If the patient's signs and symptoms meet specific criteria, then a paramedic unit is also dispatched to the scene to provide advanced medical treatment for serious injuries and illnesses. Typically, both BLS and ALS units are simultaneously dispatched when needed.

Bystander CPR—whether performed with the assistance of a dispatcher or done on the basis of previous training—is a critical component of the tiered response system. While most BLS providers in the County are able to reach the scene within an average of four to six minutes, bystanders can improve patient outcomes by initiating CPR as soon as possible. The regional EMS system has been very successful in training citizens of all ages in CPR and has successfully incorporated "dispatcher assisted CPR" into dispatcher training.

All medical emergency calls to the EMS system receive a BLS response by one of the 35 fire service agencies serving the cities and unincorporated areas of King County. This response may involve a fire engine, a BLS aid unit, and occasionally in Seattle, a first response may be handled by a private ambulance company for medically appropriate calls.

If dispatchers determine that the medical emergency is potentially life threatening, then an advanced life support team of paramedics is also dispatched to the scene. Currently, about one-third of all EMS responses in the County receive both a BLS and an ALS response.

The regional structure of the County's program and the tiered response system of resource deployment have made it possible to respond to growing demands for EMS services. This is also made possible by uniform training and continuing education programs, uniform dispatch guidelines, and a strong commitment among the 35 BLS providers serving the county to cooperate and coordinate their service delivery methods.

Medical Control

The County's tiered response system is based on a medical model that operates under the legal authority of the Medical Program Director (MPD). The MPD is responsible for training, medical control



supervision, and quality review of the County's Emergency Medical Technicians (EMT's) and paramedic providers. The MPD delegates medical authority to other physicians who provide medical control to specific Medic One programs. Paramedics and EMTs trained in defibrillation operate as extensions of the physician and are legally authorized to provide care on a medical director's license. Other major functions performed by the Medical Program Director include establishing patient care guidelines for treatment, triage, and transport; establishing and supervising training and continuing education programs; and recommending certification, recertification, and decertification of EMS personnel.

Basic Life Support Services (BLS)

Basic Life Support Services are provided by 1,800 EMT/firefighters employed by 35 different agencies throughout the County (see Map 2). EMT/firefighters receive 120 hours of initial training and hospital experience, and most have also received additional training in cardiac defibrillation. EMT/fire-fighters are certified by the state of Washington which also requires ongoing continuing education to maintain certification. BLS teams are dispatched to all medically related calls to the EMS system. These fire department based units typically arrive on the scene within four to six minutes after dispatch. In 1996, EMT's responded to more than 133,800 calls countywide, of which 52,700 occurred in Seattle and 81,100 in the County.

Advanced Life Support Services (ALS)

King County paramedics are trained through the Paramedic Training Program at the University of Washington/Harborview Medical Center (HMC), and with the Seattle Fire Department's Medic One program. Paramedics are trained to provide advanced emergency medical care to patients with serious or life threatening illness or injury. This pro-

gram is one of the most advanced paramedic training programs in the world. All paramedics in Seattle and King County receive nearly 3,000 hours of training provided by leading physicians in emergency medicine, anatomy and physiology, pharmacology, and other subjects.

There are currently 20 paramedic units in the greater Seattle-King County region, with six paramedic units in Seattle and 14 units in the County (see Map 3). A paramedic unit is typically staffed by two paramedics and requires approximately nine paramedic FTE's (full time equivalent staff) to provide service 24 hours per day, 365 days per year. All six paramedic units in Seattle are staffed by two paramedics at a time. However, the paramedic program in the County includes a wider variety of staffing configurations in keeping with different geographic and demographic patterns. Eleven paramedic units in the County are staffed by two-paramedics at a time and operate 24 hours per day. In addition, there are two EMT/paramedic (EMT/P) units staffed by an EMT/ firefighter and one paramedic. EMT/P units are deployed in the more outlying areas of King County where response times for suburban-based units are typically long. When necessary, these units are backed up by two-paramedic units, and specific dispatch criteria exist to help send the additional paramedic unit whenever needed. These units currently respond to both BLS and ALS responses.

The County also operates two half-time ALS units, with an additional 12-hour unit planned for Southeast King County. These units are staffed with two paramedics at a time, operating 12-hours per day during peak workload periods. These units are effective in suburban areas which have rapidly growing workloads and long response times, but which have not yet grown busy enough to warrant a 24 hour unit. Over 60% of the workload occurring in a 24 hour



period can be served by these units. When the 12 hour units are not in service, the nearest 24 hour paramedic unit covers their service area.

In 1996, paramedics responded to 46,600 ALS calls in the region, of which 19,600 were in Seattle and 27,000 in the County. This represents about 35% of total EMS calls that year. More importantly, this is a 10.1% increase in paramedic calls over the 1992 call volume in the Seattle-King County region.

The majority of the growth in ALS call volume occurred outside Seattle. Excluding Seattle, other King County jurisdictions experienced a 23% increase in their ALS calls between 1992 and 1996. This growth occurred despite improvements to the County's ALS dispatch criteria. Without the improvements, it is likely that the rate of increase in the County's ALS responses would have been greater than 23%. A summary of BLS and ALS utilization for the first five years of the current EMS levy is summarized in Table 1.1.

Airlift Northwest is a not-for-profit air ambulance service that provides ALS air transport to critically ill and injured patients. Air transports are used primarily in situations where ground transport times are too long for seriously ill patients.

Private Ambulance Services

Private ambulance companies operating in King County employ over 300 Washington state certified EMT's. Privately employed EMT's receive the same EMS training and continuing education as EMT/firefighters with the exception of on-going training and use of automatic external defibrillators. The primary role of private ambulance companies in the King County EMS system is BLS transportation. In 1996, private ambulance companies transported 45,000 BLS patients in both Seattle and King County.

Transport Services

All medical emergency calls to 9-1-1 currently receive a BLS response and approximately one-third receive an ALS response as well. Not all calls, however, require a transport and if one is needed, there are varying methods employed throughout the county to accomplish this. Paramedic units transport patients whose conditions or circumstances require advanced life support and stabilization from the field to the hospital. These patients frequently need monitoring or continuing care en route because they are medically unstable.

BLS transports are performed by either EMT's employed by private ambulance companies or by EMT/firefighters. As a local option, most jurisdictions use private ambulance companies for the majority of their BLS transports. Historically, private ambulance transport companies directly bill the patient or patient's health insurance for services rendered. Some BLS agencies prefer to handle their BLS transports with existing resources.

The decision to transport BLS patients by the fire service or to use private transport is based on a number of factors including:

- fire department or fire district policy
- · medical necessity
- availability of private ambulance services in the area
- BLS unit availability
- · the time of day
- weather
- destination, particularly to hospitals outside their response area or jurisdiction
- availability of backup resources

Regional Services

Regional coordination of the county portion of the EMS system is administered through the EMS Division of the Seattle/



King County Department of Public Health. The Division is responsible for the following regional EMS functions:

- Medical Program Director for the County
- EMT and First Responder Basic Training, Continuing Education and Instructor Training
- Emergency Medical Dispatch Guidelines and Triage Criteria Training
- Public Education
- Emergency Preparedness
- Critical Incident Stress Management
- Quality Assurance/Quality Improvement
- Data Collection, Analysis, and Planning
- Paramedic Continuing Education
- ALS and BLS Contract Administration and Oversight for ALS and BLS Providers
- General Administration and Coordination of the County's EMS Program
- Administration, Allocation, and Oversight of EMS Levy Funds

Current Funding Mechanisms

The County's EMS System is funded by a combination of EMS levy funds and other city and county taxes. State law allows jurisdictions to levy as much as \$0.50 per \$1,000 of assessed property values. For the last three levy periods, spanning 18 years, the levy rate in Seattle and King County has not exceeded \$.25 per \$1,000 of assessed value. Depending upon the growth in assessed valuations and the 106% levy lid, the actual levy rate has ranged from as low as \$0.19 during the late 1970's up to the current rate of \$0.25.

In King County, the EMS levy is a countywide levy and requires voter approval every six years. Voter turnout must exceed 40% of the prior general election with an approval rate of 60% or greater. Historically, voters have demonstrated strong support for the EMS system with approval rates exceeding 70%.

State law requires the King County Council as well as local jurisdictions with populations in excess of 50,000 to approve the levy proposal prior to placement on the ballot. Until recently, Seattle and Bellevue were the only cities to meet this threshold. The County now has three additional cities required to approve the ballot proposal, including Federal Way, Shoreline, and Kent.

The County and the City of Seattle manage their EMS levy funds in different ways. Seattle contributes its share of the EMS levy to the city's general fund and allocates moneys back to the fire department as an integrated budget package. Its share of the EMS levy is based on actual funds collected from Seattle residents and commercial properties.

The EMS Division annually allocates EMS levy funds to the county's 35 BLS providers, four ALS providers, and regional programs. The EMS Division uses an allocation formula approved by the fire departments and fire districts for distribution of BLS funds. This formula takes into consideration urban and rural differences, as well as the population size, BLS call volume, and assessed property values in each fire department's service area. The BLS funding levels are calculated annually using this formula.

EMS levy funding for paramedic services is provided annually to contracted ALS providers through a standard unit cost methodology. The standard unit cost formula includes the annual average cost of personnel, medical equipment and supplies, and support services such as dispatch, training, and medical direction. The average unit cost is approximately \$934,000 per paramedic unit in 1997.



Funding for periodic replacement of paramedic vehicles is a major, ongoing capital cost. Vehicle replacement occurs on a regular basis and is currently funded separately from the standard unit cost. Start up costs for new paramedic units cover personnel training, medical equipment and supplies, and other items. Start up costs are also funded apart from the standard unit cost. NewALS units are added whenever utilization exceeds capacity and/or response times exceed performance standards.

In addition to the EMS levy, ALS contractors contribute local funds to support the indirect costs of paramedic services, or to enhance their paramedic program to meet local community needs. BLS providers use local taxes to support the majority of their direct and indirect costs of BLS services. Fire departments represent a wide spectrum of communities and vary in their ability to generate local revenue to support their BLS programs.

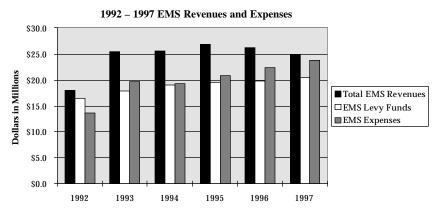
Throughout the current levy period (1992 – 1997), increases in assessed property values have not maintained pace with the growth in the demand for EMS services and the added expense needed to serve this demand.

Figure 1.1 demonstrates that the EMS levy does not fund all activities for which the EMS Division is responsible. Other sources of revenues are needed, including County general funds, grants, and state contracts, as well as accumulated reserves. It is important to note that the difference between EMS levy revenues and the cost of EMS services is increasing.

GLOBAL ASSUMPTIONS

The current structure of the EMS system in King County is complex. There are facets of it that have proven effective, and which providers wish to maintain and

Figure 1.1



Note: EMS levy funds do not cover EMS Division expenses. Additional sources of revenue such as county CX funds and grants are needed. The variance between EMS costs and EMS levy revenues has increased over time. Total EMS revenues include accumulated reserves.

strengthen. This plan assumes the following elements of the system will continue, providing the basis of operations for 1998 – 2003.

- 1. The EMS System in King County will continue to function as a tiered response system.
- King County EMS providers of BLS, ALS, and regional services remain committed to the current system and organizational structure of regionalized programs.
- EMS will continue as a public safety and public health program that functions collaboratively with other health care entities, both public and private.
- The fire service will remain an integral part of the tiered response system.
- Advanced Life Support services will continue to be an essential public service, funded primarily by tax dollars.

The global assumptions reflect a collective commitment among the County's EMS providers to strengthen an EMS program that has proven successful



throughout nearly 20 years of service. Collectively, EMS providers acknowledge that the benefits of regionalization, collaboration, and cross-jurisdictional coordination far exceed the individual benefits associated with other EMS service delivery models and funding mechanisms.

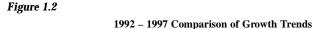
Seattle and King County's EMS programs have achieved cost savings and quality of service that is unparalleled in other parts of the country. Recent surveys on public services in Seattle and Bellevue found that EMS services were rated first or second in importance and in consumer satisfaction. In response to strong consumer support, this strategic plan assumes continuation of a publicly funded EMS system and does not explore other public or private service delivery or funding mechanisms.

ISSUES AND CONCERNS

While there are many positive aspects of the County's EMS system, there are also service delivery and funding issues that need to be addressed, including growth in demand for EMS services, perceived use of the EMS system as a health system safety net, and funding limitations for public services.

Growth in Demand for EMS Services

Citizens throughout King County are calling 9-1-1 for medical assistance at a rate that exceeds population growth or changing demographics. Population has grown approximately 1.1% per year since 1990 and the average age has increased by one year since the beginning of this levy period. The average annual rate of growth in EMS calls, however, has been 6.0% per year in the county.



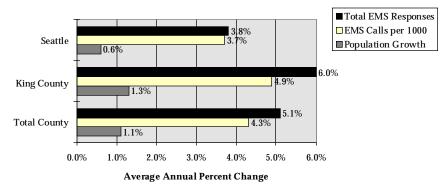


Figure 1.2 compares historical growth trends in population, EMS calls, and EMS calls/1,000 population.

Table 1.1

Seattle	HISTORI	HISTORICAL EMERGENCY MEDICAL RESPONSES						
Seattle 43,764 48,111 48,162 50,064 52,737 King County 62,272 68,643 71,288 79,504 81,107 Total 106,036 116,754 119,450 129,568 133,844 Total ALS Calls Seattle 20,404 20,823 18,873 18,339 19,608 King County 21,951 23,036 24,119 26,882 27,006 Total 42,355 43,859 42,992 45,221 46,614 Population (in 000's) Seattle 522 528 531 533 535 King County 1,043 1,060 1,068 1,081 1,094 Total 1,565 1,588 1,600 1,614 1,629 EMS Calls Per 1000 Population Seattle 84 91 91 94 98 King County 60 65 67 74 74 Total 39 39		1992	1993	1994	1995	1996		
King County 62,272 68,643 71,288 79,504 81,107 Total 106,036 116,754 119,450 129,568 133,844 Total ALS Calls Seattle 20,404 20,823 18,873 18,339 19,608 King County 21,951 23,036 24,119 26,882 27,008 Total 42,355 43,859 42,992 45,221 46,614 Population (in 000's) Seattle 522 528 531 533 538 King County 1,043 1,060 1,068 1,081 1,094 Total 1,565 1,588 1,600 1,614 1,629 EMS Calls Per 1000 Population Seattle 84 91 91 94 98 King County 60 65 67 74 74 Total 68 74 75 80 82 ALS Calls per 1000 Population Seattle 39 39 36 34 37 King County 21 22 23 25 25 King County 21 22 23 25 25 Total 27 28 27 28 29 Percent of EMS Calls with ALS Response Seattle 46.6% 43.3% 39.2% 36.6% 37.2% King County 35.3% 33.6% 33.8% 33.8% 33.8%	Total EMS Calls							
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Total ALS Calls Seattle 20,404 20,823 18,873 18,339 19,606 King County 21,951 23,036 24,119 26,882 27,005 Total 42,355 43,859 42,992 45,221 46,614	King County	62,272	68,643	71,288	79,504	81,107		
Seattle 20,404 20,823 18,873 18,339 19,606 King County 21,951 23,036 24,119 26,882 27,005 Total 42,355 43,859 42,992 45,221 46,614 Population (in 000's) Seattle 522 528 531 533 535 King County 1,043 1,060 1,068 1,081 1,094 Total 1,565 1,588 1,600 1,614 1,629 EMS Calls Per 1000 Population Seattle 84 91 91 94 98 King County 60 65 67 74 74 Total 68 74 75 80 82 ALS Calls per 1000 Population Seattle 39 39 36 34 37 King County 21 22 23 25 25 Total 27 28 27 28 25 Percent of EMS Calls with ALS Response Seattle 46.6% 43.3%	Total	106,036	116,754	119,450	129,568	133,844		
King County 21,951 23,036 24,119 26,882 27,005 Total 42,355 43,859 42,992 45,221 46,614 Population (in 000's) Seattle 522 528 531 533 535 King County 1,043 1,060 1,068 1,081 1,094 Total 1,565 1,588 1,600 1,614 1,629 EMS Calls Per 1000 Population Seattle 84 91 91 91 94 99 King County 60 65 67 74 74 Total 68 74 75 80 82 ALS Calls per 1000 Population Seattle 39 39 36 34 37 King County 21 22 23 25 25 Total 27 28 27 28 29 Percent of EMS Calls with ALS Response Seattle 46.6% 43.3% 39.2% 36.6% 37.2% King County 35.3% 33.6% 33.8% 33.8% 33.8%	Total ALS Calls							
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Total 42,355 43,859 42,992 45,221 46,614 Population (in 000's) Seattle 522 528 531 533 535 King County 1,043 1,060 1,068 1,081 1,094 Total 1,565 1,588 1,600 1,614 1,629 EMS Calls Per 1000 Population Seattle 84 91 91 94 98 King County 60 65 67 74 74 Total 68 74 75 80 82 ALS Calls per 1000 Population Seattle 39 39 36 34 37 King County 21 22 23 25 25 Total 27 28 27 28 25 Percent of EMS Calls with ALS Response Seattle 46.6% 43.3% 39.2% 36.6% 37.2% King County 35.3% 33.6% 33.8% 33.8% 33.8%	King County	21,951	23,036	24,119	26,882	27,005		
Seattle 522 528 531 533 535 King County 1,043 1,060 1,068 1,081 1,094 Total 1,565 1,588 1,600 1,614 1,629 EMS Calls Per 1000 Population Seattle 84 91 91 94 99 King County 60 65 67 74 74 Total 68 74 75 80 82 ALS Calls per 1000 Population Seattle 39 39 36 34 37 King County 21 22 23 25 25 Total 27 28 27 28 25 Percent of EMS Calls with ALS Response Seattle 46.6% 43.3% 39.2% 36.6% 37.2% King County 35.3% 33.6% 33.8% 33.8% 33.8%	Total	42,355	43,859	42,992	45,221	46,614		
King County 1,043 1,060 1,068 1,081 1,094 Total 1,565 1,588 1,600 1,614 1,629 EMS Calls Per 1000 Population Seattle 84 91 91 91 94 99 King County 60 65 67 74 74 Total 68 74 75 80 82 ALS Calls per 1000 Population Seattle 39 39 36 34 37 King County 21 22 23 25 25 Total 27 28 27 28 27 Percent of EMS Calls with ALS Response Seattle 46.6% 43.3% 39.2% 36.6% 37.2% King County 35.3% 33.6% 33.8% 33.8% 33.8%	Population (in 000's)							
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EMS Calls Per 1000 Population Seattle 84 91 91 94 99 King County 60 65 67 74 74 Total 68 74 75 80 82 ALS Calls per 1000 Population Seattle 39 39 36 34 37 King County 21 22 23 25 25 Total 27 28 27 28 27 Percent of EMS Calls with ALS Response Seattle 46.6% 43.3% 39.2% 36.6% 37.2% King County 35.3% 33.6% 33.8% 33.8% 33.8%	King County	1,043	1,060	1,068	1,081	1,094		
Seattle 84 91 91 94 98 King County 60 65 67 74 74 Total 68 74 75 80 82 ALS Calls per 1000 Population Seattle 39 39 36 34 37 King County 21 22 23 25 25 Total 27 28 27 28 25 Percent of EMS Calls with ALS Response Seattle 46.6% 43.3% 39.2% 36.6% 37.2% King County 35.3% 33.6% 33.8% 33.8% 33.8%	Total	1,565	1,588	1,600	1,614	1,629		
Seattle 84 91 91 94 98 King County 60 65 67 74 74 Total 68 74 75 80 82 ALS Calls per 1000 Population Seattle 39 39 36 34 37 King County 21 22 23 25 25 Total 27 28 27 28 25 Percent of EMS Calls with ALS Response Seattle 46.6% 43.3% 39.2% 36.6% 37.2% King County 35.3% 33.6% 33.8% 33.8% 33.8%	EMS Calls Per 1000 Pop	ulation						
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ALS Calls per 1000 Population Seattle 39 39 36 34 37 King County 21 22 23 25 25 Total 27 28 27 28 29 Percent of EMS Calls with ALS Response Seattle 46.6% 43.3% 39.2% 36.6% 37.2% King County 35.3% 33.6% 33.8% 33.8% 33.8%	King County	60	65	67	74	74		
Seattle 39 39 36 34 37 King County 21 22 23 25 25 Total 27 28 27 28 29 Percent of EMS Calls with ALS Response Seattle 46.6% 43.3% 39.2% 36.6% 37.2% King County 35.3% 33.6% 33.8% 33.8% 33.3%	Total	68	74	75	80	82		
King County 21 22 23 25 25 Total 27 28 27 28 29 Percent of EMS Calls with ALS Response Seattle 46.6% 43.3% 39.2% 36.6% 37.2% King County 35.3% 33.6% 33.8% 33.8% 33.3%	ALS Calls per 1000 Pop	ulation						
Total 27 28 27 28 29 Percent of EMS Calls with ALS Response Seattle 46.6% 43.3% 39.2% 36.6% 37.2% King County 35.3% 33.6% 33.8% 33.8% 33.3%			39	36	34	37		
Total 27 28 27 28 29 Percent of EMS Calls with ALS Response Seattle 46.6% 43.3% 39.2% 36.6% 37.2% King County 35.3% 33.6% 33.8% 33.8% 33.3%	King County	21	22	23	25	25		
Seattle 46.6% 43.3% 39.2% 36.6% 37.2% King County 35.3% 33.6% 33.8% 33.8% 33.8% 33.3%		27	28	27	28	29		
King County 35.3% 33.6% 33.8% 33.8% 33.3%	Percent of EMS Calls w	ith ALS Res	ponse					
8	Seattle	46.6%	43.3%	39.2%	36.6%	37.2%		
Total 39.9% 37.6% 36.0% 34.9% 34.8%	King County	35.3%	33.6%	33.8%	33.8%	33.3%		
	Total	39.9%	37.6%	36.0%	34.9%	34.8%		

Note: Differences between Seattle and King County ALS response statistics are due to variations in ALS dispatch criteria; recent changes to dispatch criteria in Seattle following the County's earlier changes; and differences between the demographics of population served.



Extrapolation of current growth trends through the next levy period result in a projected call volume of 120,000 EMS calls in the county by 2003. This compares to 81,000 in 1996 (See Figure 1.3).

Figure 1.3

Meeting the challenge of continued growth has come with associated costs to the EMS system. During the 1992 – 1997 levy period, the EMS Division has increased the County's ALS capacity by two ALS units, two EMT/P units and three 12 hour units.

Continuation of current service delivery methods and current ALS dispatch triage criteria would require four additional ALS units to serve the projected increase in workloads.

At issue is whether the current EMS levy rate will be sufficient to fund current service requirements and continued ALS expansion.

EMS Providers' Roles and Responsibilities

Recent growth in EMS calls may be due to:

- overall changes in our health system
- increased social problems, and/or
- confusion about the roles and responsibilities of EMS providers.

For example, there is anecdotal evidence to suggest that the health care system itself may contribute to overall growth in EMS calls. Explanations of this phenomena may include:

- early hospital discharges;
- increased use of outpatient procedures;
- increased use of home health services; or
- overall changes within the health care system.

In addition, EMS providers are increasingly called to medical emergencies cre-

Historical and Projected EMS Calls Assuming
No Change in Current Trends

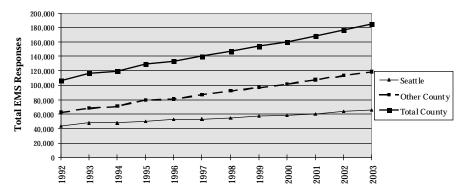


Figure 1.3 demonstrates the potential implications on EMS service volumes if current population growth trends and rates of increase in EMS calls/1,000 population continue.

ated by social problems associated with substance abuse, domestic violence, and crime-related trauma. These calls may involve life threatening situations and most EMT's and paramedics feel well prepared to handle the medical aspects of these calls. They may not, however, have immediate access to social service providers who are trained to handle the non-medical issues in these situations.

Citizens may not be clear about differences between the public role of the EMS system and the private role of their health plan and physician. While there is limited data to substantiate their observations, many paramedics and EMT's indicate that patients are increasingly confused about their health care benefits. For example:

- some residents may call 911 rather than schedule an appointment with a physician who is increasingly more difficult to see; and
- some patients may choose not to use the EMS system when they should for fear of incurring co-payments or being denied coverage due to differences between the patient's perception of an emergency and definitions used by their health plans.



Citizens may also be unclear about EMS transport responsibilities. Due to concerns over liability and risk issues, EMS providers are conservative in their transport decisions and many times transport to hospital emergency departments as a precautionary measure. This may lead to (1) higher costs for hospitals which are reimbursed less than the cost of care; and (2) higher costs to patients who are denied coverage by some health plans who retrospectively determine that the emergency room visit did not meet their definition of an emergency. It may also result in less efficient use of EMS resources, particularly for field responses that are geographically distant from hospitals and require long transport times when other equally appropriate and closer destinations are feasible.

A major issue challenging EMS providers is definition of its future role within the broader social and health system.

Funding Issues

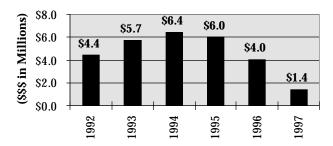
Management of EMS levy funds has required careful attention to current as well as projected service needs. Careful financial planning has historically been needed due to:

- the length of the levy period, covering six years;
- the 106% levy lid which limits the annual increase in funding to 6% over the prior year's funding level regardless of actual growth in the demand for services; and
- variation in property valuation increases that may not match the growth in demand for service.

It was projected in 1992 that excess fund balances during the early years of the levy period would be accumulated to cover expected deficits during the latter years when it was known that EMS costs would exceed revenues generated at the authorized levy rate of \$0.250 per \$1,000 AV.

Figure 1.4

1992 - 1997 Cash Accumulations From All Funding Sources



The current levy budget for 1992–1997, has been well managed to assure that existing funding (EMS plus additional sources) covered each year's expenses.

Although the 1996 authorized levy rate is set at \$0.250 per \$1,000 of assessed property values, the actual cost for EMS services in 1996 required funding equal to \$0.270 per \$1,000. Accumulated reserves together with non EMS levy funds have covered these anticipated increases in demand and cost for EMS services throughout the 1992–1997 levy cycle.

Figure 1.5 compares the annual rates of change in EMS call volume, expenses, and total revenues. Call volume in-

Figure 1.5

Comparison of Annual Percentage Change in Call Volume, **Expenses, and Revenues** 1996-7 1995-6 **■** Total Costs 1994-5 ☐ EMS Calls **■** Total Funds 1993-4 1992-3 0% 10% 15% 20% 25% 30% 35% 40% 45% Annual Percentage Increase (Decrease)



creased every year of the levy cycle and expenses increased in five of the six years. Revenues increased during the first three years then actually declined during the last three years, underscoring the value of cash accumulations during the early years of this levy period. While some non-levy funds may be available, it is uncertain whether these funds are sustainable on an ongoing basis or whether the EMS system can rely on non-levy funding sources.

Funding will be a major challenge during the next levy cycle. The current levy rate will need to be increased in order to support the major components of the current regional EMS system during the next six year levy period.

EMS Research

Excellent outcome data exists for trauma and cardiac arrest patients served by EMS providers. This data medically supports current EMS response time standards, dispatch guidelines, allocation of resources, and general deployment of aid and medic units. Additional research is needed to document the effectiveness of early pre-hospital intervention for other medical conditions.

As an international model in out-of-hospital care, King County EMS providers are challenged to secure sufficient funds for ongoing research and development in Emergency Medical Services.

EMS Operational Improvements

There are operational issues that need to be addressed during the next six years, including evaluation of:

- triage guidelines for dispatching ALS and BLS units;
- response time standards that consider varying emergency situations;
- expansion of quality assurance activities to include continuous quality improvement principles;

- BLS and ALS performance indicators:
- · better efficiency measures; and
- technology improvements to enhance service delivery in the field.

At issue is whether there is funding to support development and implementation of these critical operational improvements within the time frame when potential benefits and cost-savings will be most needed.

SUMMARY OF EMS ISSUES AND CONCERNS

Analysis of utilization and financial trends demonstrate that the demand for EMS services has increased more rapidly than the funding base needed to support it. To assure that service delivery costs are aligned with available funding, it will be necessary to develop and implement a combination of cost-control strategies and demand management initiatives. It also may be necessary to access other revenue in addition to existing funding sources.

Efforts to align limited funding with operating expenses need to consider methods of meeting emerging community needs while finding ways to address funding challenges to the current system. Coordination and collaboration with other health care providers will be needed to assure EMS services continue to be delivered cost-effectively and efficiently.

EMS providers will continue to be challenged by competing demands for revenues. In the future, it may be necessary to establish funding priorities to assure that expenditures balance competing needs for systemwide improvements versus continuation of existing services to meet growth in demand.



MAJOR STRATEGIC FOCUS

With multiple and sometimes conflicting funding and program priorities facing EMS providers, the strategic and financial plan for the 1998 – 2003 levy period focuses on the following:

In the face of limited funding, County EMS providers will work together collaboratively and coordinate efforts with other public and private social and health care entities to:

- 1. Address increasing workload volumes in BLS and ALS services;
- 2. Enhance existing programs and services to meet unmet community needs; and
- 3. Address emerging service delivery and financial challenges.